DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE: NH-009-2(93) Chatham
P. I. No.: 522920
S.R. 404 Spur/U.S. 17 @ Back River

OFFICE: Engineering Services

DATE: June 16, 2008

FROM: Brian Summers, P.E., Project Review Engineer REW

TO: James B. Buchan, P.E. State Urban Design Engineer

SUBJECT: IMPLEMENTATION OF VALUE ENGINEERING STUDY ALTERNATIVES

Recommendations for implementation of Value Engineering Study Alternatives are indicated in the table below. Incorporate alternatives recommended for implementation to the extent reasonable in the design of the project.

ALT No.	Description	Savings PW & LCC	Implement	Comments
New Bridge (A)				
A-1	Increase span lengths to reduce the amount of substructure	$219,700	No	The Bridge Office has approved the 70' spans that are currently shown. If 75' spans are used larger piles will be required which was not included in the VE Team's cost estimate.
A-3	Reduce shoulder widths for entire 3290' length of bridge structure	$1,950,000 (proposed) $1,302,993 (actual)	Yes / modified	The VE Team's recommendation was 10' on the outside and 10' on the inside. The Design Office has agreed to reduce the inside and outside shoulders to 8'.
A-4	Reduce length of Deceleration Lane	$154,400	Yes	This should be done.

ALT No.	Description	Savings PW & LCC	Implement	Comments
New Bridge (A) - continued				
A-6	Reduce travel lane widths to 11' through entire project limits	$680,000	No	The truck traffic is 10 % and the Design Year traffic is 35,900 vpd. In addition, the future Port development in SC will increase the truck percentage.
Demolition and Staging (B)				
B-1	Do not demolish existing bridge at this time	$2,532,900	No	The Bridge Maintenance Office as well as Chatham County have both stated that they do not want to maintain this bridge. The liability and future maintenance costs could outweigh the proposed savings.
Approaches (C)				
C-1	Reduce Design Speed to 45 mph	$291,000	Yes	This should be done.

A meeting was held on June 16, 2008 to discuss the above recommendations. Jeff Dyer, Andrew Ballerstedt, and Matt Houser with QK4, Robbie Frizzell with J.B. Trimble, Butch Welch, and Marcela Coll with Urban Design, and Brian Summers, Ron Wishon and Lisa Myers with Engineering Services were in attendance.

Approved: Dale M Ross **Date:** 6/18/08
Gerald M. Ross, P. E., Chief Engineer

BKS/REW

Attachments

c: R. Wayne Fedora
Todd Long

Bill Ingalsbe
Bill DuVall
Mike Clements
Ben Buchan
Darrell Richardson
Butch Welch
Marcela Coll
James Magnus
Will Murphy
Slade Cole
Ken Werho
Nabil Raad
Lisa Myers

Preconstruction Status Report By PI Number

Print Date: 06/16/2008

PROJ ID	COUNTY	DESCRIPTION	MGMT. ROW DATE	SCHED DATE	MGMT. LET DATE
522920-	Chatham	SR 404 SPUR/US 17 @ BACK RIVER 1 MILE N OF SAVANNAH	Sep-08	Mar-12	Sep-09

NH000-0009-02(093) **FIELD DIST:** 5
TIP #: 98-H-1 **TWIN:** **US:** 17
MPO: Savannah **EST DATE:** 1/3/2007
MODEL TYPE:
PROJ MGR: Welch, Albert **PROJ LENGTH:** 0.80
PROG TYPE: Replacement **TYPE WORK:** Bridges
CONCEPT: BR REPL **LET RESP:** DOT
Congressional Districts: 12

Phase	Approved	Proposed	Cost	Fund	Status
PE	1999	1999	1,905,155.44	Q05	AUTHORIZED
ROW	2008	2009	813,000.00	LY10S	PRECST
ROW	2008	2009	368,091.14	L1C0	PRECST
CST	2012	2012	20,813,000.00	L1C0	PRECST
CST	2012	2012	4,187,000.00	LY10S	PRECST

SCHED START	SCHED FINISH	ACTIVITY	ACTUAL START	ACT/EST FINISH	PCT	DISTRICT COMMENTS
		Define Project Concept	10/3/2003	3/18/2004	100	TAS/Initial Concept Meeting held 9-21-04; traffic needs to be off bridge by 2010; GDOT will do Env doc/3-30-05/Maint. letting project in Apr-05 to work on bridge; project needs to be complete and opened to traffic by 2010!/2-12-07/concept meeting 3-22-07/9-24-07/concept report submitted to UD
		Concept Meeting	3/22/2007	3/22/2007	100	
7/4/2008	8/7/2008	Concept Submittal and Review			0	
8/8/2008	8/21/2008	Receive Preconstruction Concept Approval			0	
8/21/2008	**8/21/2008**	**Management Concept Approval Complete**			**0**	
6/25/2008	7/1/2008	Value Engineering Study	7/23/2007		97	
9/12/2008	9/12/2008	Public Information Open House Held			0	
8/24/2009	8/21/2009	Environmental Approval	1/15/2007		55	
3/6/2009	3/6/2009	Public Hearing Held			0	
		Mapping	2/23/2005	3/22/2005	100	
9/15/2008	10/17/2008	Field Surveys/SDE			0	
10/20/2008	**5/8/2009**	**Preliminary Plans**			0	
2/23/2009	4/24/2009	Preliminary Bridge Design			0	
8/22/2008	9/26/2008	Underground Storage Tanks			0	
10/24/2008	3/12/2009	404 Permit Obtainment			0	
9/14/2009	9/15/2009	PFPR Inspection			0	
10/21/2009	1/12/2010	R/W Plans Preparation			0	
3/10/2010	**3/15/2010**	**R/W Plans Final Approval**			**0**	
10/21/2009	10/23/2009	L & D Report Development and Approval			0	
3/16/2010	1/24/2012	R/W Acquisition			0	
8/6/2010	8/19/2010	Stake R/W			0	
10/21/2009	10/30/2009	Soil Survey			0	
10/21/2009	11/25/2009	Bridge Foundation Investigation			0	
10/26/2009	**7/5/2010**	**Final Design**			0	
12/24/2009	2/17/2010	Final Bridge Plans Preparation			0	
7/27/2010	7/28/2010	FFPR Inspection			0	
8/11/2010	8/24/2010	FFPR Response			0	

BIKE PROVISIONS INCLUDED?: N **MEASUREMENT SYSTEM:** E **CONSULTANT:** T **UT EST:** $ 0.00

PDD: Waiting on SCDOT. 9/4/02. Need CST 2008, bad bridge! 10/5/04.
Bridge: BRIDGE REQUIRED
Design: MGC:QK4; developing Concept Report; 04-24-08
EIS: CE|NotApvd|NotonSched|Mrythi|04.23.08
LGPA: BI-STATE AGREEMENT SGN S. CAROLINA DO 10% CST/PE COST 3-2-05
Planning: GDOT PROJECT 1996; CUTS LRTP 1999/2002; POOR SUFFI RATING
Prog. Develop: BRIDGE IN BAD SHAPE-REPLACE BEFORE SC PROJ IF SC NOT MOVING
Programming: PR2/P=2-2-99|#1 11-05|#2 2-06|#3 8-07
Traffic Op: CAH|BR REPL PRJCT|S&M PLNS N/R|101001|$
Utility: OCD SUE
EMG: 2112 (H85(94)-E/V88); DOT=M; C=S/D

R/W INFORMATION:
PREL PARCEL CT: **TOTAL PARCEL CT:** **ACQUIRED BY:** DOT **ACQ MGR:**
UNDER-REVIEW CT: **RELEASED CT:** **OPT-PEND CT:** **DEEDS CT:** **COND-PEND CT:** **COND-FILED CT:**
RW CERT DT: **ACQUIRED CT:** **RELOCATION CT:**

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENTAL CORRESPONDENCE

FILE NH-009-2(93), Chatham County
SR404 SPUR/ US17 at Back River
1 Mile North of Savannah
P.I. No. 522920

OFFICE Urban Design

DATE May 27, 2008

FROM James B. Buchan, P.E., Urban Design Engineer

TO Brian Summers, P.E., Project Review Engineer

SUBJECT **Value Engineering Study - Responses**

Reference is made to the recommendations that were contained in the Value Engineering Study – Final Report dated November 9, 2007 for the above referenced project. Responses and recommendations are as follows:

1. Value Engineering Alternative A-1: Increase span lengths to reduce the amount of substructure - *Not Recommended*

This alternative is not recommended for implementation by the Department due to the following reasons:

- The current policy from the Office of Bridge Design states a maximum of a 50-ft span length for pile bents. The Bridge Office has approved the proposed design of 70-ft bent spacing which is a 28% increase over this policy.
- The longer span length of 75-ft as opposed to the proposed 70-ft reduces the number of foundation systems from 47 to 44. When comparing similar foundation systems, this will provide a cost savings of $219,700. However, the VE Team uses the same size PSC piling for each scenario. The design team maintains this cost savings will not be realized since the number and pile size will increase as the dead load increases due to the larger beam size thus changing the bent design for each scenario. The design team also maintains construction cost will increase due to the requirement for heavier equipment to construct the bridge.

2. Value Engineering Alternative A-3: Reduce shoulder width for entire length of bridge – *Recommended – with modification*

This alternative is not recommended as proposed by the VE Team but should be implemented with a modification as proposed by the design team for the following reasons:

- The proposed length of the bridge is 3,290-ft. The VE Team proposed a 4-ft shoulder on one side of the bridge and a 10-ft shoulder on the other. This leaves one lane of traffic without a breakdown area for emergencies. It is not known if and when the parallel bridge will be constructed in the future.
- The design team proposes to provide 8-ft shoulders with 12-ft travel lanes. Even though the collision rate along this roadway is below the statewide average, the need for emergency shoulders in both directions along the bridge should be considered due to a high truck percentage and increasing traffic volumes. The 24-hr truck percentage is 10% while the 2006 ADT was 14,840 vpd and the projected 2030 ADT is 35,900 vph.
- The VE Team's proposal reduces the typical section by 6-ft at a cost savings of 1,950,000. The design team's proposal will reduces the typical section by 4-ft at a cost savings of 1,302,993. The cost of providing emergency shoulders in both directions for the entire length of the bridge will cost 647,007.

3. Value Engineering Alternative A-4: Reduce the length of the deceleration lane – *Recommended*

This alternative is recommended for implementation by the Department and the length of the deceleration lane will be reduced.

4. Value Engineering Alternative A-6: Reduce travel lane widths through the entire project to 11 feet – *Not Recommended*

This alternative is not recommended for implementation by the Department due to the following reasons:

- The 24-hr truck percentage is 10% while the 2006 ADT was 14,840 vpd and the projected 2030 ADT is 35,900 vph. Though not a designated Truck Route, this corridor has a high truck percentage and future Port development in South Carolina will only increase this percentage along with traffic volumes.
- The design team proposes to provide 8-ft shoulders with 12-ft travel lanes. Even though the collision rate along this roadway is below the statewide average, the need for 12-ft travel lanes and emergency shoulders in both directions along the bridge should be considered due to the high truck percentage and increasing traffic volumes.
- The proposed length of the bridge is 3,290-ft and it is not known if and when the parallel bridge will be constructed in the future.

5. Value Engineering Alternative B-1: Do not demolish the existing bridge at this time – *Not Recommended*

This alternative is not recommended for implementation by the Department due to the following reasons:

- The liability and maintenance associated with keeping the bridge in place could outweigh the potential cost savings.

- The Office of Bridge Maintenance stated it does not desire to maintain the existing structure once traffic is shifted to the new bridge. Due to this, the city or county must assume the maintenance and legal responsibilities of the existing bridge if it were to remain. Chatham County has stated that it will not maintain the structure once traffic is shifted to the new bridge.
- If in the future it is found that a substantial cost savings is practical and liability and maintenance issues are resolved, this recommendation will be revisited.

6. Value Engineering Alternative C-1: Reduce posted and design speed to 45 mph from the beginning of the project to 1,000 feet from the shore line – *Recommended*

This alternative is recommended for implementation by the Department due to the following reasons:

- The speed design for the Talmadge Memorial Bridge is 55 mph while the posted speed is 45 mph.
- Even though reducing the speed design from 55 to 45 mph will not maintain a consistent speed design through this corridor, it will reduce the decal lane on the bridge structure from 680-ft to 395-ft. This decal lane is proposed for the SB SR404 SPUR/ US17 exit onto Hutchingson Island from South Carolina to Georgia.
- All other design features will not be affected by reducing the speed design from 55 to 45 mph.

JBB:ASW:ab(QK4) ASW

Attachment